

Lucy Hutchings Hunt

LIVE THE CHANGE BY LUCY HUTCHINGS HUNT: FEATURING DOUG LAPSLEY OF OODLU

Intro :

Thank you for joining me, Lucy Hutchings Hunt for my podcast Live the Change. My goal is to bring you powerful and authentic conversations from inspiring global business voices. Helping to share these fascinating stories about the magic and rewards that heart-led leadership brings, fuels my personal mission to support and motivate as many fellow business-owners and entrepreneurs as possible.

Are you ready to get honest, step out of your comfort zone and step into your best, heart-led business self? Sure you are. And if you're not ready just yet, keep listening to my guests' inspiring stories about how they personally Live the Change, and you soon will be.

Today, I am really pleased to be speaking to Doug Lapsley who is the co-founder of Oodlu, which is really, really interesting. It's completely changing the way teachers are able to teach children with an open-source platform that is the tool to be able to 'gamify' knowledge dissemination within the classroom. It's got massive fans globally and it's going all-guns and it's really helping many teachers from all different socio-economic backgrounds across the world. So I'm really excited to be speaking to Doug. It's also lovely to be connecting with him again because he's somebody that I went to school with. This is the beauty of the web; we haven't met in person for many years, but it's really lovely to be connecting again online and to be able to share what Doug's been up to and hopefully get his message out far and wide. So, thank you for joining me and let's crack on with the show.

The Interview

LHH: Doug, where are you speaking to me from today?

DL: The very northwest coast of Scotland up in Gairloch which is stunning up here at this time of year. The hills are covered in snow with really calm, beautiful water out on the loch. We look out onto the Isle of Skye, it's beautiful.

LHH: Yeah. I actually have some really fond memories of Gairloch, having gone walking there in my early twenties with some friends during the university holidays. It's was really fabulous and I later found out that that's where my grandparents met.

DL: Is it really?

LHH: Yeah. Is there a submarine Base?

DL: Yes, one loch up from us, yes.

LHH: Yes, exactly. My grandfather was in the navy and my grandmother was in the WRENS and they met when they were based up there. So actually it's a really big, significant part of my life.

Interview cont.

DL: I never knew that, that's fantastic.

LHH: I think what a wonderful place to be. Yeah, and actually, as long as you've got internet, you can kind of live anywhere, can't you? Because you are the cofounder of Oodlu.

DL: Well, yeah, I'm a software engineer in 3D graphics by trade, and actually I arrived here because I was traveling in a caravan with a satellite dish on the roof, doing exactly what you were describing there. I'm a landscape photographer as well, I was – I've got kids now.

DL: I just sold all my stuff down south, bought a caravan, stuck a satellite dish on the roof and started traveling and made my way up slowly to here and then met my now-wife in the laundry at the campsite.

LHH: Wonderful! And then decided just not to move on further?

DL: We sold the caravan because we then had three children and I built a house and lost the house and bought a house. It's 10 years, that process has taken so it was all a bit crazy really. But you're right, I think that speaks a little bit to the way a lot of start-ups are starting these days, with much less focus on getting investment and possibly more bootstrapping from home. I think they call this the side-gig economy or something. Where people are starting stuff up on the side or in our case, I was already running a business as I was traveling, but it does mean that you can do that from anywhere.

DL: I think there's a lifestyle business to be made out here just for asking people who are currently working in cities and maybe don't like it so much to come and join a web design company or copywriting company or a sound engineering company out in these beautiful locations, the hill walking and the beaches and yeah, throwing balls for dogs and things.

LHH: It's exactly what we've done because running a digital agency as we do, we just decided that we didn't need to be in London or any other large city. We just upped sticks and we've moved to Perthshire, so we've got the Cairngorms on our doorstep and it's just a different level of existence for me. I mean, I know some people love city life and I do in short doses, but actually I quite like being able to work with a beautiful view outside my window and it's all about the Internet connection for me. As long as the Internet is super fast, everything else just fits into place. Is that your experience?

DL: Yeah, absolutely. And I think the other thing is that the need for offices has been reduced significantly over those few years. I mean, we are doing a conference call right now on a digital platform. And that works fine. I have never met most of my clients.

LHH: You mean never met them in person?

DL: Oh, I know them extremely well. But I've never physically met a lot of them.

DL: Yeah. And that's just kind of the way things are going. And I have colleagues who I work with everyday, all day and there's no need to pay for office space and certainly not in a town. So you can change, doing this sort of thing. So in fact we're going to move to a town fairly soon. My choice, but not for the office space.

Interview cont.

LHH: I have one of my key team members, Martin, he's based in Uruguay. I've been working with him for 10 years, never met him in the flesh. And I always have a joke that until my husband joined me in the company, Martin and I had far more conversations in life than I ever did with my husband. I never actually physically met him, but that's the beauty of the web is that you can kind of build relationships.

DL: It is and I think from a workflow point of view, it's actually rather better as well because firstly you don't end up sort of leaning against walls chatting to each other and having extended coffee breaks, which I just don't believe in. Yeah. This is a really important point about working remotely because it's actually more efficient when it comes to doing work as well. So with things like Google docs, which are collaborative, you can get two or three people editing them simultaneously and so you can put together letters and you can put together plans and stuff like that. All using your own keyboard, which actually makes for much faster collaborative working as well, which is quite interesting.

LHH: It's brilliant, I love that. When you're sitting there working on an excel spreadsheet with somebody who's in a completely different location and you're watching the numbers change in front of you.

DL: It still freaks me out a bit, it's crazy.

LHH: Fun though!

DL: You're a Southerner aren't you? We haven't seen each other for must be getting on for like 25 years.

DL: It's is crazy isn't it? I love how that happens though 'cause you know, you just pick up where you left off.

LHH: So I haven't seen you probably since I was 18. Where did you go to Uni after school?

DL: Loughbrough. I did an Industrial Design degree and then a Masters in Computing after that.

LHH: Okay, cool. I was at Exeter, but anyway, the wonders of social media, and we connected again through Facebook and we realized we've got a lot in common, not least living in Scotland, having three children and being passionate about the digital sphere. I love the fact that social media has brought us together again. I mean, in some contexts, I think social media has worrying and ominous connotations, but there are so many positives as well when it's used healthfully, when it's used productively. And I just feel like one of the beautiful things about it is that I get to reconnect with people like yourself who I probably wouldn't have connected with, were it not the social media, if I'm honest.

DL: Yeah, it's great. It's good for that, absolutely. But it has been in the news a lot recently. That's interesting, isn't it?

Interview cont.

LHH: What, the positive sides of social media?

DL: Well, the negative sides. I think there seems to be a lot more kind of public knowledge about stuff, which maybe it was only us techies who were sort of seeing before.

LHH: Are you talking about things like Cambridge Analytica?

DL: Well, yeah, I suppose that was the first of the big ones, but there's some stuff around the impact of social media...I mean there was a 14-year-old girl the other day who'd killed herself because she'd been on Instagram and had been viewing all sorts of content about self-harm and things. It's these tragic things that happen and I think that it's good that it's making the news now because that is making parents aware of the potential pitfalls. So you know, I think maybe these next few years we will all start to see social media with slightly less rose-tinted glasses maybe.

LHH: I think it's one of those really weird things. When Facebook first came about in 2007, 2008 which is over a decade ago now, isn't it? Facebook's been in our lives, but when it first came about, it was a bit like, prod it! And now you know for us, in our early forties, it's just been something that we've sort of held at arms-length because we've always been entrenched in the traditional ways of communicating. So it's just been a kind of cherry on the top of communicating. Whereas for the younger generation - for children, for millennials and people that are younger than them, generation zed and below, that is the way they communicate. I mean when we were young we didn't have telephones - mobile phones didn't exist in the same way that, you know, my nine year old wants a phone. He's not getting one for a couple of years, but it's a totally different way. So they haven't learned that solid foundation that we are coming from. So it is a completely different landscape. And as a parent, yeah, I'm a little bit terrified about how I navigate that, to be honest.

DL: I think one of the interesting things about our generation and our parents' generation is we were used to finding one thing and sticking with it like the telephone or Facebook. And as a result, I think possibly a lot of us oldies stuck with Facebook. But you know, the younger generation is much more digitally portable - they'll move over from snapchat across to TikTok and yeah, that's just kind of what happens.

LHH: You just mentioned something called TikTok - that's a completely new one to me.

DL: Okay. So yeah. I don't know it well myself yet, I haven't had time to spend playing with it, but essentially it's a very similar thing. I think it was bought by Musical.ly, if I remember rightly, because it was starting to steal their trade a bit. I think that's right, but I'm not sure - I don't know enough about it. Apparently that's the platform at the moment for youngsters

LHH: So tell me about Oodlu because you've basically co-founded this platform, which is - and jump in if I'm getting it wrong - but yeah, it's to support teachers and educators to gamify whatever it is that they want to gamify to make teaching more exciting. Is that right?.

Interview cont.

DL: That's right. The idea is that we get rather frustrated when software companies have what they think is a good idea and then build it and then they shove it at teachers and say, this is what you get. Go. Because it's quite prescriptive and very often the software companies really haven't got anyone who works in education or anything like that.

DL: So we come at it from a very different angle. We come from the bottom up, essentially saying that teachers really know what they need and want. All of our software development is driven by teacher interventions. And my colleague, Dr. Wayne Holmes has his Doctorate in Games-Based Learning and digital stuff. And he's working with a number of universities as an I in pedagogy and AI for Games-Based Learning and Education. And he was a teacher for many years as well. So we kind of come from a quite an interesting mix actually of backgrounds. And our approach really is to mix those things but with the very heavy emphasis on the pedagogy of it. So we wouldn't put any feature in place that didn't have pedagogical backing and hadn't been talked about with teacher. So it's quite like the other way round. Quite often with the features that we build, we'll get a request from teachers, we'll have a chat about it and we just build it, you know, cause quite often that's just me building the platform. So there's no kind of difficult pipeline of sign-offs and checks through a company in the conventional way. So we just build it - we're quite reactive like that as well.

LHH: Give us an example. Did they come to you? How does it work?

DL: Okay, sorry, I've got straight on development, and didn't talk about what it does. Okay, so the idea is that the teacher would come to the site, they would create a question collection. So that's literally as it might sound, a collection of questions.

LHH: On what subject for example? Dinosaurs, ancient Egypt?

DL: I mean literally anything. Again, this is trying to give teachers the tools. We actually contemplated calling as teacher tools because the idea is that it's tools for teachers and it's not like a thing for teachers. It's tools for teachers. So the tool in this instance is creating questions. So I think we've got nine questions on the site at the moment. We've got another 10 also in the pipeline to create. So a question type might be multiple choice or it might be true and false. It might be sequencing, it might be matching, it might be, you can listen to the word and spell it, those sorts of things. As you can imagine, just with nine question types like that, it's quite powerful. And then we also have these things we call question references. So you can put an image or a video or text or audio with your question as well. So you could say, listen to this piece of audio and what's the answer to this question sort of thing. And they can also put slides with it as well. So there's a bunch of things they can do with these questions. So they can use any language, any subjects.

LHH: Any language in the entire universe?

Interview cont.

DL: That's correct. I mean literally anything. And we've even actually got our community, we've got a lovely community and they've translated it into their own languages as well, the actual website itself. So the translation system where basically we give them access to a Google sheet and they can go in and they can then do the translations and then I press a couple of buttons, it downloads it and we see it on the site.

LHH: I'll just stop you there, because that is such a wonderful thing. I mean it's verging on Wikipedia, isn't it?

DL: Yeah, it is. I mean it comes from two angles really. The logic behind it is that we don't want to start paying vast amounts of translation because if we do that we'd sink, well honestly it's extremely expensive and we'd have an ongoing cost to that. And so we see this is a community project. I didn't mention it, but we're a social enterprise so this isn't just a big money-making exercise. In fact, it's sort of quite the reverse actually. We've got a social mission and quite simply you couldn't pay to have all the languages. And the other thing is, you know, there are a lot of languages in the world and we want to be able to offer every language. So if somebody comes to us and says, we want it in Swahili, we don't want to say, sorry, we can't do that, it's not going to be a big enough market, therefore we can't put the money into that to do it.

DL: So rather than go through all of that kind of rigmarole, which I think is quite off-putting, we just say, well look, we can't afford to pay for it, but if you would like it in your language, here's the facility to translate it and we'll add it and thank you so much.

LHH: That's phenomenal. I love that.

DL: It's part of opening this up as well, because the idea of Oodlu, the social part of this is to kind of open up the playing field a little bit and it's cheap. It's one pound per teacher per month. You can use the free tool as well, so you don't have to pay, but if you do it's one pound and we give concessions all the time as well to people if they have problems with that, but the idea is that hopefully anyone who has internet access (14:52) can use this tool and that's why we give people the ability to have it in their language, to create questions in any language to make it, you know, relatively affordable.

One of the things that does my head in a bit at the moment, is a lot of software tools price on what they'd like to make rather than what's actually appropriate in the current climate in schools. Because there's no money put simply.

LHH: Well there's no money in British schools, let alone...

DL: Right. You know, we have a fair few people in the Philippines for example.

LHH: So just to be really clear so people really understand the grand vision for Oodlu, how does this enable and support teachers on a day to day basis?

DL: Sorry, I got side-tracked again.

Interview cont.

LHH: You're a techy geek Doug, we'll forgive you!

DL: Yeah. So we've got to the point where we're creating questions. So the teachers create these questions. Actually the students can do it as well, and that's a very good way of learning by the way. But the teacher creates the questions and then they set those questions to their students to play in any of the games that we have on the platform. So we have two types of games. We have what we call individual games. So, at the moment there are 20 of those and the students can play that question collection in any one of the games. Okay, so that same question collection can be played in any one of the games so it gives a whole bunch of variation. If you like, it's drill and practice but with a whole bunch of neuroscience bells and whistles as well. But it's in different games each time so it keeps it interesting.

DL: With these games we use a machine learning algorithm, and a Leitner box technique delivers the question dynamically. So we don't just kind of deliver 10 questions that the student knows the least and put those to the front. We throw in questions they know a bit as well for reinforcement, and again there's quite a lot of sort of science behind how we do that.

LHH: So they don't lose confidence and throw it on the floor and walk away?

DL: There is that, but it's mostly for reinforcement. Just because somebody got a question right once doesn't mean they're not going to forget it. So you keep on reminding them. And in fact we're working on some stuff at the moment which will interweave some of the content that we're doing now in the future in other question collections that you do, so that it just kind of brings back the questions from the past so that you keep on refreshing your knowledge. So again there's some techniques we're looking at for that. So those are the individual games. And then the other thing we have is a whole class game. We're going to have a number of whole class games, but we've got this one at the moment and we call that Oodlu Quickfire.

LHH: I bet that's super fun as well because all the children can get involved simultaneously, right?

DL: Yeah. So we have it so that they have their mobile devices or laptops - it could be anything that connects to the internet, actually. And they basically go in and they enter the class code. So the teacher would run this thing on the whiteboard in front of the class and then it would give them a code.

LHH: What if they don't have a whiteboard, could they use a laptop or a computer?

DL: You could, but it's, I mean it's works best when it's displayed big at the front of the class because it's kind of like a game show sort of thing. You could use a projector. And we've actually played it between schools as well. So you can play it remotely between schools because all the questions come up on the devices as well.

Interview cont.

LHH: So if you had a partner school or like your French exchange school or something like that, you could do it like a live Zoom call or something where you're both answering questions?

DL: Yes.

LHH: That that would be so much fun.

DL: It's really cool. We did Croatia to New York recently – that was quite fun. That one is based quite heavily on the neuroscience work of the now Professor Paul Howard Jones who's a Professor in Neuroscience, and he uses this system called the uncertain reward to spike the dopamine effect in the brain, which again is a great mechanism for that.

LHH: What was the reward? The uncertain reward?

DL: I'm the developer part of this so I might get this slightly wrong, but I'll do my best. The idea is that you may get a reward but you may not get a reward. You get a spike of dopamine, which is the sort of excitement of it when you find out, but also by having that uncertainty, that dopamine effect also has a tail off – the level of dopamine tails off more slowly if you have that uncertainty. That's the basics of it I think, but again, this is really Wayne's area.

LHH: Gosh, I want to learn all about this and start applying it in my own life!

DL: Well I think there's a lot of uncertainty in life! So there's that and there are a bunch of other techniques in there around feedback and stuff that we use to help with the learning process as well. It's kind of like running a game show in your classroom. And the kids get super excited about it, you know, screams and woops of joy and jumping on the chairs and things – it's great. And that kind of pertains to the whole kind of principle behind Oodlu and that is that we don't really want to force learning on kids. We want kids to come to learning, engaged and wanting to learn and then when they get there, we get the tools to the teachers to do that. And then when they get there, we use sound pedagogy in science to make sure that the way stuff is delivered is really good for the learning process.

LHH: I think this is so fascinating from my perspective. I come at this from two perspectives. One as a parent – I have three children – a nine year old, a seven year old and a five year old. And I actually am terrified about how addictive or addicted it would appear that they are to games. So my son Ferdinand, he's the nine year old, he likes to play this thing called roadblocks. Now I'll be really honest with you, I'm not 100% sure what happens on there, but I know that some of his other friends play it. So as part of me, that sort of thinks, if other parents have vetted it, it's probably okay. And I'll just say right now though, I put my hands up and say that I feel a bit out of my depth on that one and the five year old, she doesn't play games as such, but she definitely is engaged with devices far more than I would expect a five year old to be. But the point is they just love these games and these devices and it does worry me that they are wasting precious time when I used to read a book or I don't know, talk to myself or something because I didn't have any devices to stimulate me at their age. Well, use my imagination rather than talk to myself – but I feel that they're wasting their time on things that are literally just monopolizing their minds rather than feeding their minds.

Interview cont.

LHH: So, what you're saying is that you've created a tool or tools that's actually based on sound educational principles, but has still got all the fun of the Games. Am I right?

DL: I think that's fair comment, what you're talking about. There is a thing called persuasive design and this guy called Gary Vaynerchuk, who if you don't know him...

LHH: Yeah, Gary V – go on...

DL: He calls it day trading attention. It started with social media, starting to try and get more people to spend more time on the platforms and so when they started developing these things like when you're writing your text and the little bubbles come up to show that someone's going to text you back...it's keeping you there, looking and it's about keeping you there.

DL: And kids are absolute lambs to the slaughter having these devices placed in their hands. I bought a book recently on persuasive design – it's not all sinister, some is just good practice actually. But there's stuff in it which is designed to keep your focus. So the question then is that if the persuasive design is applied to something that is not useful then, yes, the day trading of the attention is on something not worthwhile, but you can also apply it to something worthwhile as well. So you could also say that some of the techniques people are using here are linked to those things, but with the purpose of actually getting some good, sound learning out of it. So it's trying to be a positive application of those principles.

LHH: So how are those parents and those teachers who maybe have some responsibility for children when they have some down time, how do we make sure that their attention is focused on something that's worthwhile? How do I know when roadblocks or the game he's playing on Roadblocks are worthwhile? What criteria do I use to make that judgement?

DL: That is very difficult because if you look at the games out there that claim to be educational, as I said earlier, a lot of these companies will just put it out there without having consulted properly. And some of the claims out there are quite unfounded. So I find it difficult.

LHH: As a parent?

DL: Yes I do because as a parent, I don't have the time to spend individually researching the scientific offering that is coming from a company that creates games – I just don't have the time to make that judgement. The kids will say to me – can I install this app, Daddy? Err...!

LHH: How old are your children?

DL: Pretty much the same age as yours. Six, eight and nine. So much the same kind of experiences as yours, I think. So the answer to your question is I don't know how to vet. Even with my perspective, it's difficult to know. All you can do, I guess, is to monitor it. There are some interesting things around the autoplay on YouTube I saw recently which really got me thinking.

Interview cont.

LHH: Autocue?

DL: Autoplay, you know the thing that plays at the end of the video.

LHH: Well that is a worrying one because my son Herbert is really into military history. He loves battles and Napoleon and all this kind of thing. But the thing is, he was watching something on Napoleon and I come in ten minutes later and it's snipers...

DL: Yes, I was watching a really interesting TED talk about the way that that works. It's an algorithmic choice, it's a machine learning recommended system – there's nothing unusual in that. But it's like compound interest – the effective change that over multiple machine learning choices like that can take you to some interesting places. So let me give you an example – you've got a five year old watching Peppa Pig. At the end of that Peppa Pig episode, it will choose something that it thinks is similar to Peppa Pig and play it. But this time it's not actually Peppa Pig, it's a satire of Peppa Pig and it's maybe funny but at the end of that one it picks another one based on what you've just watched, so the one with satire in it. But this time it goes for some darker satire. So it can lead off. So within 3 or 4 videos, it can lead off to Peppa Pig having some horrible things done to her. So it's quite a sinister thing this, and it's very easy as parents to go, right YouTube – and let them watch it, but before you know it they've gone into something that is really age inappropriate.

LHH: I guess that's what I'm aware of now, especially with Herbert now with his fascination for military engagement, but you have to be vigilant 24 hours a day.

DL: We used to be put in front of the BBC and that was vetted by the BBC...

LHH: ...And even then I wasn't allowed to watch some things. I was always irritated because my parents wouldn't allow me to watch Grange Hill, for example.

DL: Same! But it's very much more freeform now and that's the world we live in. But going back to your question, how do we choose software tools, the answer is I'm not sure. And you can't always believe the scientific claims either.

LHH: So we as parents have to develop our own intuition, we can't expect to rely on the fact that there are experts out there making informed judgement calls for us, we have to get our backsides and do the research, and keep a watchful eye out.

DL: That's right, it's a buyer beware thing. It's much the same as sugar, I was watching a programme the other day about sugar content in cereal bars and things. You try and go on a diet and look up healthy cereal bars and you find out they're 45% sugar, but they're dressed up like they're nice and healthy and it's a similar problem.

LHH: Ok, so don't sleepwalk is what you're saying.

DL: That's a fair comment. I suppose the problem that we're facing now is that we're facing so much choice aren't we? And we're seeing new things all the time.

Interview cont.

LHH: And I suppose that's the same for people who are not comfortable in the digital space who maybe have only just accepted that they have to carry a mobile phone around for example. And my experience of working with teachers is that they are really passionate about their subject and maybe not so passionate about technology! So it really does come as an afterthought for them.

DL: Yes. There a couple of things that are really interesting there – firstly how much teachers are using tech in the classroom, and secondly what those subjects are teaching our children for the future that they're going to face. Because I think that's probably the most important topic that could be covered, actually.

LHH: Explain a bit more about that.

DL: Well I think we all need to accept that there's a massive insurgence of artificial intelligence – you can't really deny that that's happened – it's already here. It's a very interesting area because it has the potential to – well I think we're already in it – to create another industrial revolution but it's a very quick and it's going to have a massive effect on the job market and it's going to be vertical. So in the first revolution it was farm workers who were slowly put out of work over a period of a number of years by machines. But this one is much faster – we're talking about accountancy, we're talking about lawyering, all sorts of things.

LHH: Doctors?

DL: I think doctors is a very interesting one. So imagine a situation where you had a chip inside you that is monitoring – some people get freaked out by the concept of this – but if you get your head around the idea, it has fundamental consequences. So you have a chip in your body which measures all your vital signs. It then sends it back to a central database. That central database has machine learning algorithms run over it on a daily basis to compare and contrast all the different peoples' symptoms and their properties essentially. And it does anomaly detection, so checking for anomalies within that person's vitals. It is therefore able to predict, because it has got a machine learning model that learns from every other vital sign that's ever been seen and we know what's happened to those people. We can then predict the conditions that that person is likely to develop. So then you are preventing illness rather than curing it, so if people aren't actually getting ill, then you don't need the hospital. So the hospital becomes more like an A and E department than recovering and operations, then it's more for the things you couldn't stop like a ladder falling or a car accident. For the things are preventable if you learn about them early enough, people will never develop the illnesses in the first place. So your hospital will get scaled down, putting a lot of people out of work – this is part of the conversation we are having – it also means that the costs go down massively and those people who left the hospital could go and do some of the other care work that is needed so badly needed in society right now. I think that's an interesting example because it's more about displacement of the workforce than it is total replacement. Humans are a resourceful bunch – I think there is the possibility of a need for a universal wage in the context of this because it's going to be so quick. Whether there will be replacement jobs quickly enough to deal with the displacement of the workforce is another matter entirely.

Interview cont.

LHH: So with regards to displacement of the workforce, in your opinion, how can we make sure that our children are not victims of it? What can they have in their resource kit to ensure that they are not the doctors and lawyers that are thrown on the waste heap?

DL: Well that's a fundamental question. I call this generation the Lost Generation. Because at this point in time I don't think that our education system is catering for it at all. We've still got an education system based on knowledge, in great part. Teachers are absolutely wonderful and they do a fantastic job. The system around them though is like a juggernaut and it's heading in the wrong direction. The skills that will be useful will be critical thinking, ideation, problem solving, those sorts of things, because it will be some time before machines can do those things well. There's not much point in learning facts, apart from for the ability to put together a decision of some kind, because we have got billions of them at our fingertips. What do they need to prepare for the future? The skills I have mentioned there and a high level of technical literacy. I come to this from a slightly skewed perspective because [of my techy background], but one thing that is absolutely certain is that technology will exist in nearly every single job going forward except maybe the manual trades, like for example up here deer stalking is unlikely to have a huge amount of technology in it.

LHH: Tell me what you mean by technological literacy. Does that mean being able to code, do you mean being able to switch on a computer? What does that mean to you?

DL: Well, I mean it ranges of course, but to me I think a deeper understanding of how stuff works is very helpful and it's helpful in a number of contexts. In the context of the fact that so many things are going to need to be invented that require technology over the next 20 years, it's not a bad thing to be able to actually make it. So that's certainly a good thing. But further than that to understand how it works so that even if you're just a user of it rather than a creator of it, you know why it's working, how it's working, what it's doing and you're not phased by it. I suppose you could say it's a bit like when computers first came out, my dad was fairly quick onto it, but even he found it difficult.

DL: We don't want to go into the next generation as consumers. One of my concerns with the thing you talked about earlier about kids on iPads and things, it's that people are very good at using technology, but they're not necessarily very good at creating technologies. So you're not technically literate because you can use an iPad. Sorry, you're not. A four year old can use an iPad. We've seen it. It's amazing. And we think, gosh, our four year old is really clever. They can use an iPad. No, that iPad has been designed really cleverly, so it's usable. I think technology will be more and more usable. But there is a high possibility that this generation who's going through it at the moment we'll be a generation of users and not creators. And I think that's a fundamental mistake. We've had all sorts of issues in our local school here just trying to get computing provision in the school, basic computing provision in the school.

Interview cont.

DL: Yes I'm a software developer so you've got to take this with a pinch of salt but I feel so strongly about this that I actually teach my kids coding and building robots in the evenings, every evening because it's just missing and it's so crucial skill going forward. So I mean, if you think about the next set of innovative products that are come out, we're going into the Internet of things now. That's the next sort of phase which for anyone who doesn't know is everything connected by the Internet - I mean, everything.

LHH: Which I have to say does terrify me as much as I am passionate and I consider myself to be a technology evangelist. I do sometimes think, well all you'd have to do is just pull the plug on the Wifi, right? You know, some terrorist group can just blow up whatever it is. The server, the network. And then what do we do? It's like the people who know how to stalk deer and start fires, they would be the ones that survive. Well the rest of us would sit here and freeze. I can start a fire by the way...I learnt it at CCF at school with you!

DL: Yeah. I mean if you think about solar flares, they can knock out power grids and they can knock down systems and all those sort of things. And yeah, we've become very reliant- the finance system, the food distribution systems, the power systems.

LHH: I mean realistically are we not just leaping into some kind of abyss that we don't really understand by putting so much into the Internet of Things?

DL: Yeah we are, and AI is a classic example of that and it might be an interesting segue. So in the next thousand products we'll be taking x and adding AI to it and I think that's interesting because you've got the internet of things combined with AI combined with everything. It basically means that every product that was ever invented can now be reinvented, which is an amazing opportunity, if you know how to make products. Hence one of the reasons I think it's important that kids should be digitally creative.

LHH: There's so much opportunity there.

DL: Well, there's an entire world of products. Again, it's a huge opportunity, but in terms of adding AI to everything, there's a lot of discussion around this. Elon Musk started up his open AI project on the basis of wanting to democratize AI so that it doesn't fall into one large company's hands in some way, but it's a race - you've got a race between the different countries and establishments to reach what they call the singularity as fast as possible.

LHH: So is the space race over and the AI race is on, is that...?

DL: I wouldn't say the space race is over -you've also got the race up into space for all sorts of reasons. Elon Musk's going to Mars. There are other companies, Virgin and Google and people doing low orbit. I think global travel and space travel as well because we're going to have problems with aeroplanes soon with fossil fuels stuff and the amount they burn being unacceptable.

LHH: We won't need them because we've got zoom! Um, well yeah I think I'll stay here and just use Zoom.

Interview cont.

DL: Exactly. I mean that's another huge topic in itself isn't it? But I think AI is interesting because once it has the potential to really learn and be sentient, then we've got a problem if it's not contained and a lot of work is being done at the moment on building ethics into AI. So far AI has been fairly benign in that it will recommend you products and in that it will make decisions for you and recognize photographs and all those sorts of things which we've become accustomed to using. But there is a point at which it will get more sinister than that.

LHH: I heard something when I was at the Forbes Women's summit in New York last year, there was a lot of talk about AI as you can imagine, and one of the things that really terrified me, was somebody who is in that industry, she mentioned about Google facial recognition and that being something that had been integrated into the automation of cars that drive themselves, the driverless cars. There was a scenario where because of the facial recognition software only having been created by a small group who were of a certain colour and mainly white males and they hadn't used a large enough group of people to do that AI research.

What happened was that the facial recognition software was not recognizing people of colour as humans and therefore adding a lower value to that. So if you're going to crash into something, it's more important to crash into the nonhuman thing. So to think about the sinisterness of that. That's terrifying.

DL: Yes it is. We call that bias and it is a problem. That example you're talking about there is because the training set that's used for most facial recognition is swayed towards Caucasian. They must have changed it now that they've recognized it.

DL: No, I don't think so. And the trouble is that a lot of developers are going out and training their own models based on the same data sets that exist, but it's further than that as well. But you might be interested in a book called *Weapon of Math Destruction* if this is a topic that interests you. It talks about the black box that is AI and I think this is really interesting. There are a number of different types of algorithms that are out there for AI. Let me just break this down for a second. Machine makes up the vast majority of the sphere that we call AI and machine learning essentially is training a model based on data. In the case you're talking about, there would be image data, you feed loads and loads of images and then that would create a classifier, in the case you were talking about, it classifies as human or not human and if you have a bias of the type you're talking about, it ends up with a bias in it. There are a number of different algorithms you can use for that. You can use what we call the traditional machine learning algorithms and those are quite predictable because they're essentially equations that in one way or another regress and kind of narrow in on a particular decision, to not get too techy about it. And then there are these things called neural networks which are not at all predictable because you can think of a neural network as a system for creating any algorithm rather than an algorithm and it does this thing where it goes back and forth through the neural network kind of balancing itself out until it comes up with a perfect classify.

Interview cont.

DL: Now the problem with that latter one is because it creates this extremely complicated algorithm, which is different every time you create it, so it doesn't have any accountability to it. So it is a black box. So if you start to use it for stuff which is sensitive, like the judicial process, for example, policing in certain areas, then you can get these biases in that you didn't even know were there. For example, if you can imagine recruiting police officers, if you recruit police officers based on previous demographic data of police officers and that previous demographic data has racism, for example, in-built in it, then your model becomes racist. And you don't even know it..

LHH: ..or gender bias.

DL: Yes, and that's the word you're looking for - bias. It biases it in one way or another based on the dataset that you train it with. So unless you have a very balanced and pure data set, almost by nature, machine learning ends up with a bias.

LHH: So we as humans have a massive responsibility to open our eyes to this and to understand it so that we can, I don't know whether it's campaign or be aware of, or just partake in being part of that data set, I guess.

DL: It's also self-propelling and you're right. We have a huge responsibility because it does this and it's self-propelling. I'll give you an example of policing. Imagine a system in which policing is based on crime level. Okay, so you put more police in the areas where the crime level is high. So then you put more police in there. They then find more crimes because they're policing that area, which then makes the data for that area classify as a high crime area more prevalent in the data set. Whereas the crimes that happen on the estates where there is nobody policing don't get recorded, so you get a bias that actually starts to self-amplify when you start to deploy based on data like that. Whereas if you'd done it on human intuition, you might still have put people there, but you wouldn't keep on amplifying that issue in that area in the same way as this does. I think of it for CV applications as well, so many CVs that a lot of people are now using - a lot of companies now using machine learning to filter out 400 of them before...

LHH: Well the big jobs 4 are, aren't they?

DL: Right. So if there's something in your CV that the data is stacking up against you, then you don't even get to be seen. So, that thing about policing I think is really worrying. We do have a responsibility to keep safeguards and checks on this.

LHH: I think that we do live in this digital age. We do need to embrace it. We can't just close our eyes and sort of go, oh well we'll let somebody else deal with the techy stuff because it's not my thing. You know? And that's what this podcast is about. It's kind of saying, look, okay, this might not be part of what you do in your day to day job, but we've all got to open our eyes and start to get a grip of this so that we can at least start to make informed decisions and just be a little bit more vigilant about what's going on around us, rather than just passing the buck for someone else to make the decisions.

Interview cont.

LHH: But I come back to this...somebody once did a really beautiful diagram of the difference between a machine and what was a human. It's like if you take a car apart and you lay all the pieces out on the floor and then you put them all back together again in the right order, you can start that car again.

LHH: If you take a human apart and they lay all the pieces on the floor, and sew it all back together again in the right order, that human won't start again. There is a fundamental ingredient in humanity that is still absolutely magnificently, unquestionably, wonderfully unique that we just don't understand and that we will never understand because there's some greater force that understands it that we don't. And that is the difference. And it always will be the difference between human intuition and anything that has been created by a machine. It goes back to Mary Shelley's Frankenstein doesn't it really, I mean are you with me?

DL: I am entirely.

LHH: The essence of spirituality, which has to come into play with human decision making, but it doesn't come into play with machines because that's just the difference between machines and humans. And then they're going to not be the same way.

DL: Yes, I think that's right. I mean there's been some sort of low-level simulations of those sorts of decisions, but what you're saying essentially supports what I was saying earlier about this ideation, critical thinking. And the bit I left out of that was art and music because one of the things of course, which it comes with, did I say creativity? I meant to if I didn't, but creative thinking, because machines will be very good at filling the tasks. In the early days, there'll be very good at fulfilling the tasks which are repetitive and mundane and actually that's a good thing for humanity – do we've really want to be looking through spreadsheets the whole time?

LHH: Yeah, definitely not in my case.

DL: Exactly. So there's a lot of great stuff here, you know. I mean if you look at the sort of Utopian view of this, what happens in the future is that the machines take the drudgery out of our lives, giving us more time to spend concentrating on the things that we actually want to do, which is a lovely thought, isn't it really? And some of those things that we love to do are things that computers may simply never be able to do. It's a bit like the difference between a Kindle and an actual book. A lot of us still really like an actual book.

LHH: I was given a Kindle for Christmas a couple of years ago. I couldn't bring myself to take it out to the box. I love my books. I love feeling them. I feel the words; I touch the words as well as read them.

Interview cont.

DL: Right. So it doesn't matter how good a piece of artwork that's been created by a computer is, it's still been created by a computer. And even if it's the Mona Lisa, it's still been created by a computer. And there's something about that disconnect. I think it's the same way that we like fire and we like water and the wind on our face. We appreciate a view, those sorts of things that are just human traits. And we can simulate them as much as you like and we may get very good at simulating them, but they'll never actually be done by humans. So if I gave you a watercolour, for example, which was painted by a real person, and then I gave you a digital image exactly the same, but you knew it was from a computer for some reason, you'd hold more value in that watercolour. So I think there's definitely a place going forward for human creativity and the Utopian view is that the wonderful thing about the machines doing the drudgery work is that that we actually would be able to accelerate that part of ourselves and people will be able to find talents that they don't currently know they have, because they wouldn't be having to do that.

LHH: Right. Lovely. I just have to appreciate your insane artistic capabilities that it would appear you've only just discovered and are sharing with the world via Facebook and Instagram and various things. I literally am blown away by some of the pieces of art that you're churning out on a daily basis.

DL: I can't get my machine learning algorithms to do it, you see.

LHH: It's really phenomenal and I love that you've just kind of decided to take up painting. I like to find a challenge and then go for it. And yeah, so that's my next thing. As I mentioned earlier about photography and stuff, that was quite an interesting thing for me personally too because it had some technology in it, but it was also very much an art form. I haven't got time to do landscape photography now. If you do it well, it's a very time-consuming pursuit and it takes you out at awkward times when you've got kids and things. But watercolour painting is a way to get a Yin to my Yang. A very techy day job and then something totally untechy at the weekends.

LHH: Well I love that. I love it. Thank you for sharing them with us. Thank you so much for coming on and sparing this time to talk to me and to record this conversation. We've had a couple of conversations like this in the past, which I just found so fascinating. So it's really great that we've been able to record this and we can share it with other people. Because for me that's what this is all about: it is just opening up that conversation around technology, around what digital means in this day and age. You know, for so many people of our generation and above it can be a really terrifying, kind of alien thing that's just taking over society. And I just really want to demystify that so that people can become more informed and just start to feel more comfortable and more empowered around making decisions. And I just think you are literally, I think probably just because you're genuinely interested and where you come from in life and having children yourself and you're passionate and, I just want to appreciate you for that because it's great that we have people like you who kind of just get to the nuts and bolts of it, and are able to explain it in quite simple ways for the more laymen of us.

Interview cont.

DL: Thank you. That's sweet. I mean, the nuts and bolts of it are in my view, that people in our generation and possibly the 10 years below and above us, I'm 42, we have a genuine and pressing responsibility at the moment to shape what digital looks like in the next 20 years. And we have that responsibility right now. It's immediate and it's really important. If we sleep walk through this, the large companies and profits will come before the welfare of the people who live in this world. So for me, if there's one message that I think is important here, it's that we must all hold these companies to account for what they do and be responsible for the way that we let our children use software and devices going forward. And I don't mean restricted, I mean make sure that they use their time wisely. We have a mantra on our wall here, which is 'get wiser, stronger, better, every day'.

LHH: Oh, I love that.

DL: And a part of that is that is you should be constantly improving yourself and using your time wisely. And I think it's very easy to let children now not use their time wisely. And if we do then it's going to be a mistake.

LHH: That's so powerful. So powerful. And it's been so thought provoking and yeah, it's not easy is it? It's easier said than done, isn't it? Stopping the children from using the iPads unwisely.

DL: Yes it is. There are all sorts of ways that you can do this. For example, we say to our kids things like, yeah, sure you can use your laptop if you want, but you've got to go and research something. So my eldest at the moment, she's getting into painting and things and so I said go and research modern art. If you say you can use it, but you've got to do this particular thing with it. And that's teaching them research skills, that's teaching them to use search engines, teaching them to use critical thinking in the decisions they make about what they're looking at. And they've got to extrapolate that information and then be able to relay it back. And that's a very useful way of using it. So yes, it is difficult to stop them if you kind of just hand them an iPad, but you can hand them an iPad and say, yeah, you can use it for this. Just a thought, I don't know.

LHH: Okay. So to wind up your top three most important things that you want to share with the world, if you are about to be taken off this planet by aliens and you had to choose three what would they be?

Doug's Top Tips:

- 1. Ensure that we as a generation shape the digital future that we have, and take responsibility for that.**
- 2. Do our best to encourage digital literacy for our children.**
- 3. Have a view to the fact that the job market is going to change so radically over the next 10 years. And understand that it's fast and understand that if you've got a child in school right now, they're probably going to be ill-prepared. In the next 10 years there will be a change in education. And then it might start preparing people properly, but this generation is too far behind. So if you're as a parent, you want to be aware of the fact that the education system is probably not going to be preparing perfectly at this point in time. Scary, scary. Hmm.**

LHH: Scary. Lots of responsibility for us parents. Okay, I'm going to leave you with your amazing day, which will be making you wiser, stronger, and better every day. That's really helped me become wiser, stronger and better today. So thank you. And when I post this podcast, I'll make sure that we link to all your marvellous ventures so people can get in touch with you. Thank you for your time. Have a brilliant day and I'll meet you on social media very soon.

DL: Absolutely. My pleasure, thanks so much.

Live the Change - Message

I really hope you enjoyed listening to this episode of my Live the Change podcast. If you did, I'd be so grateful to you for emailing or texting a link to the show, or for sharing it on social media with those you know who might like it too. My mission is to share heart-led business experience, strength and hope with as many people as possible. I'm proud to be building a sharing, caring and service- focused business movement that I'm so glad you're here to be part of. If you haven't done so already, help me build, by following me on social @lucyhutchingshunt or by getting on my list at LucyHutchingsHunt.com. And remember, we rise by living lifting and being of service to others and by finding our own unique and personally fulfilling ways to Live the Change. Until next time!